DETAILED ACTION

Response to Amendment

1.   Applicant amended claims 1, 4-7, 9, 16, 18, 20-22, 24 and cancelled claims

2-3, 8, 17, 19, 23, 31-37. In this Office Action, claims 1, 4-7, 9-16, 18, 20-22, 24-30 are

allowed.

Drawings

2.   Based on Applicant's argument's filed on 12/24/2008 in Remarks section of the

Amendment after Final is reviewed and valid. Therefore, drawings objection is

withdrawn.

Claim Rejections - 35 USC § 112

3.   Applicant amended claims 31-37 by cancelling them. Therefore, Applicant has

overcome the 35 U.S.C. 112, 2nd paragraph rejection.

Claim Rejections - 35 USC § 101

4.   Applicant agreed and authorized Examiner to amend claims to overcome ossible

claims rejection under 35 U.S.C. 101.

EXAMINER'S AMENDMENT

5.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Mr. Paul P. Kriz, Reg. No. 45,752 on 1/14/2009.

Claims*: Replace amended on record claims 1-24 and 31-37 with the*

following:

1. (Currently Amended) In a data collection agent, a computer-implemented method
for processing storage information concerning storage entities in a storage area network
environment, the computer-implemented method comprising:

receiving a data collection policy identifying storage information to be collected
concerning a set of storage entities in the storage area network environment;

collecting storage information concerning the set of storage entities according to
the data collection policy;

processing the collected storage information to produce at least one summary
record of the storage information for the set of storage entities, the at least one
summary record containing a summary of the collected storage information for the set of
storage entities calculated according to the data collection policy; and

transferring the at least one summary record from the data collection agent to a
storage management application for presentation to a user of the storage management
application;

wherein receiving a data collection policy comprises:

receiving a collection level identifying a set of files corresponding to the set of storage entities from which storage information is to be collected; and

receiving a collection period value indicating how often to perform collection of the storage information concerning the set of storage entities;

wherein receiving a collection level corresponding to the set of storage entities from which storage information is to be collected comprises:

receiving at least one of a host collection level, a file system collection level and a file set collection level; and

based on the collection level, identifying, as the set of storage entities, a set of file systems containing at least one file from which storage information is to be collected;

wherein collecting storage information concerning the storage entity according to the data collection policy comprises:

detecting occurrence of the collection period;

in response to the occurrence of the collection period, parsing the set of file systems to query each of the at least one files within directories in the set of file systems identified based on the collection level to obtain file metadata associated with each file; and

based on the file metadata for each file detected in each of the set of file systems during parsing, collecting the storage information related to ages and sizes of files and directories for each storage entity associated with at least one of the host collection level, the file system collection level and a file set collection level.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The computer-implemented method of claim 1 [[2]] wherein receiving a collection level comprises:

receiving a selection of a host collection level identifying at least one host computer system that maintains access to a set of file systems from which storage information is to be collected; and

identifying, as the set of storage entities from which storage information is to be collected, files within a set of file systems accessible within data storage systems associated with the at least one host computer system identified by the host collection level.

5. (Currently Amended) The computer-implemented method of claim 1 [[2]] wherein receiving a collection level comprises:

receiving a selection of a file system collection level identifying at least one file system that maintains access to the set of files from which storage information is to be collected; and

identifying, as the set of storage entities from which storage information is to be collected, files within the identified at least one file system corresponding to the file system collection level.

6. (Currently Amended) The computer-implemented method of claim 1 [[2]] wherein receiving a collection level comprises:

receiving a selection of a file set collection level identifying at least one specific file from which storage information is to be collected, the selected at least one specific file indicating the set of storage entities from which storage information is to be collected.

7. (Currently Amended) In a data collection agent, a computer-implemented method for processing storage information concerning storage entities in a storage area network environment, the computer-implemented method comprising:

receiving a data collection policy identifying storage information to be collected concerning a set of storage entities in the storage area network environment;

collecting storage information concerning the set of storage entities according to the data collection policy;

processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities, the at least one summary record containing a summary of the collected storage information for the set of storage entities calculated according to the data collection policy; and

transferring the at least one summary record from the data collection agent to a storage management application for presentation to a user of the storage management application;

wherein receiving a data collection policy comprises:

receiving a collection level identifying a set of files corresponding to the set of storage entities from which storage information is to be collected; and

receiving a collection period value indicating how often to perform collection of the storage information concerning the set of storage entities; wherein receiving a collection level comprises:

receiving a selection of a file set collection level identifying at least one specific file from which storage information is to be collected, the selected at least one specific file indicating the set of storage entities from which storage information is to be collected; and

wherein receiving a selection of a file set collection level comprises receiving file filter criteria including at least one of:

        i) at least a portion of a name of a file;

        ii) an owner of a file;

        iii) an age of a file; and

        iv) a size of a file,

the file filter criteria identifying file characteristics of files to be included within the set of storage entities from which storage information is to be collected.

8. (Canceled)

9. (Currently Amended) The computer-implemented method of claim 1 [[8]] wherein collecting the storage information related to ages and sizes of files and directories for each storage entity comprises calculating at least one of:

i) a running total number of files detected in each directory in the file system;

ii) a running total of the amount of data maintained within the each file detected;

iii) a running total of the age of each file;

iv) for each directory detected in each of the set of file systems during parsing, a running total of the size of all files in that directory;

v) a number N of the largest files for the collection level; and

vi) a number M of the oldest files for the collection level.

10. (Currently Amended) The computer-implemented method of claim 9 wherein processing the collected storage information to produce a summary record of the storage information for the set of storage entities comprises:

calculating age characteristics related to files and directories within the set of file systems identified based on collected storage information for the collection level; and

calculating size characteristics related to files and directories within the set of file systems identified based on collected storage information for the collection level.

11. (Currently Amended) The computer-implemented method of claim 10 wherein the collection level is a host collection level; and wherein calculating age averages related files and directories within the set of file systems identified based on collected storage information for the host collection level comprises:

for all file systems accessible to host computer systems associated with the host collection level, producing an age summary record indicating an age of files within the file systems for each host for a plurality of age ranges and an amount of storage the files within each age range occupy and a list of the top M oldest files; and

wherein calculating size averages related files and directories within the set of file systems identified based on collected storage information for the host collection level comprises:

for all file systems accessible to host computer systems associated with the host collection level, producing a size summary record indicating an total amount of files stored within the file systems for each host, at least N of the largest files accessible to the host.

12. (Currently Amended) The computer-implemented method of claim 9 wherein the collection level is a file system collection level; and wherein calculating age averages related files and directories within the set of file systems identified based on collected storage information for the file system collection level comprises:

for all file systems associated with the file system collection level, producing an age summary record indicating an age of files within the file systems for a plurality of age ranges and an amount of storage the files within each age range occupy and a list of the top M oldest files with the file systems; and

wherein calculating size averages related files and directories within the set of file systems identified based on collected storage information for the file system collection level comprises:

for all file systems associated with the file system collection level, producing a size summary record indicating an total amount of files stored within the file systems, at least N of the largest files accessible within the file systems.

13. (Currently Amended) The computer-implemented method of claim 1 wherein the data collection policy received defines a host collection level and wherein collecting storage information concerning the set of storage entities according to the data collection policy comprises:

for each host defined by the host collection level, collecting storage information related to the sizes and ages of files and directories within file systems accessible to that host;

and wherein processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities comprises:

for each host defined by the host collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of files and directories within file systems accessible to that host.

14. (Currently Amended) The computer-implemented method of claim 1 wherein the data collection policy received defines a file system collection level and wherein collecting storage information concerning the set of storage entities according to the data collection policy comprises:

for each file system defined by the file system collection level, collecting storage information related to the sizes and ages of files and directories within that file system;

and wherein processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities comprises:

for each file system defined by the file system collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of files and directories within that file system.

15. (Currently Amended) The computer-implemented method of claim 1 wherein the data collection policy received defines a file set collection level indicating a specific set of files for which storage information is to be collection and wherein collecting storage information concerning the set of storage entities according to the data collection policy comprises:

for each file defined by the file set collection level, collecting storage information related to the size and age of that file;

and wherein processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities comprises:

for all files defined by the file set collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of the files identified by the file set collection level.

16. (Currently Amended) A computerized device comprising:

a network interface coupled to a network;

a storage interface coupling a data storage system that maintain storage entities to the computerized device;

a processor;

a memory system;

an interconnection mechanism coupling the network interface, the storage interface, the processor and the memory system;

wherein the memory system is encoded with an agent application that, when executed on the processor, produces an agent process that processes storage information concerning storage entities in a storage area network environment that are associated with the computerized device by causing the computerized device to perform the operations of:

receiving, via the network interface, a data collection policy identifying storage information to be collected concerning a set of storage entities that the computerized device maintains in the data storage system;

collecting storage information concerning the set of storage entities according to the data collection policy;

processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities, the at least one summary record containing a summary of the collected storage information for the set of storage entities calculated according to the data collection policy; and

transferring, via the network interface, the at least one summary record from the data collection agent to a storage management application for presentation to a user of the storage management application;

wherein when the agent process causes the computerized device to perform the operation of receiving a data collection policy, the agent process causes the computerized device to perform the operations of:

receiving a collection level identifying a set of files corresponding to the set of storage entities from which storage information is to be collected; and

receiving a collection period value indicating how often to perform collection of the storage information concerning the set of storage entities;

wherein when the agent process causes the computerized device to perform the operation of receiving a collection level, the agent process causes the computerized device to perform the operations of:

receiving a selection of a host collection level identifying at least one host computer system that maintains access to a set of file systems from which storage information is to be collected; and

identifying, as the set of storage entities from which storage information is to be collected, files within a set of file systems accessible within data storage systems associated with the at least one host computer system identified by the host collection level;

wherein when the agent process causes the computerized device to perform the operation of collecting storage information concerning the storage entity according to the data collection policy, the agent process causes the computerized device to perform the operation of:

detecting occurrence of the collection period;

in response to the occurrence of the collection period, parsing the set of file systems to query each of the at least one files within directories in the set of file systems identified based on the collection level to obtain file metadata associated with each file; and

based on the file metadata for each file detected in each of the set of file systems during parsing, collecting the storage information related to ages and sizes of files and directories for each storage entity associated with at least one

of the host collection level, the file system collection level and a file set collection
level.

17. (Canceled)

18. (Currently Amended) The computerized device of claim 16 [[17]] wherein when the
agent process causes the computerized device to perform the operation of receiving a
collection level corresponding to the set of storage entities from which storage
information is to be collected, the agent process causes the computerized device to
perform the operations of:

      receiving at least one of a host collection level, a file system collection level and
a file set collection level; and

      based on the collection level, identifying, as the set of storage entities, a set of
file systems containing at least one file from which storage information is to be
collected.

19. (Canceled)

20. (Currently Amended) The computerized device of claim 16 [[17]] wherein when the
agent process causes the computerized device to perform the operation of receiving a
collection level, the agent process causes the computerized device to perform the
operations of:

      receiving a selection of a file system collection level identifying at least one file
system that maintains access to the set of files from which storage information is to be
collected; and

      identifying, as the set of storage entities from which storage information is to be
collected, files within the identified at least one file system corresponding to the file
system collection level.

21. (Currently Amended) The computerized device of claim 16 [[17]] wherein when the agent process causes the computerized device to perform the operation of receiving a collection level, the agent process causes the computerized device to perform the operation of:

receiving a selection of a file set collection level identifying at least one specific file from which storage information is to be collected, the selected at least one specific file indicating the set of storage entities from which storage information is to be collected.

22. (Currently Amended) A computerized device comprising:

a network interface coupled to a network;

a storage interface coupling a data storage system that maintain storage entities to the computerized device;

a processor;

a memory system;

an interconnection mechanism coupling the network interface, the storage interface, the processor and the memory system;

wherein the memory system is encoded with an agent application that, when executed on the processor, produces an agent process that processes storage information concerning storage entities in a storage area network environment that are associated with the computerized device by causing the computerized device to perform the operations of:

receiving, via the network interface, a data collection policy identifying storage information to be collected concerning a set of storage entities that the computerized device maintains in the data storage system;

collecting storage information concerning the set of storage entities according to the data collection policy;

processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities, the at least one

summary record containing a summary of the collected storage information for the set of storage entities calculated according to the data collection policy; and

transferring, via the network interface, the at least one summary record from the data collection agent to a storage management application for presentation to a user of the storage management application;

wherein when the agent process causes the computerized device to perform the operation of receiving a data collection policy, the agent process causes the computerized device to perform the operations of:

receiving a collection level identifying a set of files corresponding to the set of storage entities from which storage information is to be collected; and

receiving a collection period value indicating how often to perform collection of the storage information concerning the set of storage entities;

wherein when the agent process causes the computerized device to perform the operation of receiving a collection level, the agent process causes the computerized device to perform the operation of:

receiving a selection of a file set collection level identifying at least one specific file from which storage information is to be collected, the selected at least one specific file indicating the set of storage entities from which storage information is to be collected;

wherein when the agent process causes the computerized device to perform the operation of receiving a selection of a file set collection level, the agent process causes the computerized device to perform the operation of receiving file filter criteria including at least one of:

i) at least a portion of a name of a file;

ii) an owner of a file;

iii) an age of a file;

iv) a size of a file; and

wherein the file filter criteria identifies file characteristics of files to be included

within the set of storage entities from which storage information is to be collected.

23. (Canceled)

24. (Currently Amended) The computerized device of claim 16 [[23]] wherein when the agent process causes the computerized device to perform the operation of collecting the storage information related to ages and sizes of files and directories for each storage entity, the agent process causes the computerized device to perform the operation of calculating at least one of:

       i) a running total number of files detected in each directory in the file system;

       ii) a running total of the amount of data maintained within the each file detected;

       iii) a running total of the age of each file;

       iv) for each directory detected in each of the set of file systems during parsing, a running total of the size of all files in that directory;

       v) a number N of the largest files for the collection level; and

       vi) a number M of the oldest files for the collection level.

25. (Original) The computerized device of claim 24 wherein when the agent process causes the computerized device to perform the operation of processing the collected storage information to produce a summary record of the storage information for the set of storage entities, the agent process causes the computerized device to perform the operations of:

     calculating age characteristics related to files and directories within the set of file systems identified based on collected storage information for the collection level; and

     calculating size characteristics related to files and directories within the set of file systems identified based on collected storage information for the collection level.

26. (Original) The computerized device of claim 25 wherein the collection level is a host collection level; and wherein when the agent process causes the computerized device to perform the operation of calculating age averages related files and directories

within the set of file systems identified based on collected storage information for the host collection level, the agent process causes the computerized device to perform the operations of:

for all file systems accessible to host computer systems associated with the host collection level, producing an age summary record indicating an age of files within the file systems for each host for a plurality of age ranges and an amount of storage the files within each age range occupy and a list of the top M oldest files; and

wherein when the agent process causes the computerized device to perform the operation of calculating size averages related files and directories within the set of file systems identified based on collected storage information for the host collection level, the agent process causes the computerized device to perform the operations of:

for all file systems accessible to host computer systems associated with the host collection level, producing a size summary record indicating an total amount of files stored within the file systems for each host, at least N of the largest files accessible to the host.

27. (Original) The computerized device of claim 24 wherein the collection level is a file system collection level; and wherein when the agent process causes the computerized device to perform the operation of calculating age averages related files and directories within the set of file systems identified based on collected storage information for the file system collection level, the agent process causes the computerized device to perform the operations of:

for all file systems associated with the file system collection level, producing an age summary record indicating an age of files within the file systems for a plurality of age ranges and an amount of storage the files within each age range occupy and a list of the top M oldest files with the file systems; and

wherein when the agent process causes the computerized device to perform the operation of calculating size averages related files and directories within the set of file systems identified based on collected storage information for the file system collection level, the agent process causes the computerized device to perform the operations of:

for all file systems associated with the file system collection level, producing a size summary record indicating an total amount of files stored within the file systems, at least N of the largest files accessible within the file systems.

28. (Original) The computerized device of claim 16 wherein the data collection policy received defines a host collection level and wherein when the agent process causes the computerized device to perform the operation of collecting storage information concerning the set of storage entities according to the data collection policy, the agent process causes the computerized device to perform the operations of:

for each host defined by the host collection level, collecting storage information related to the sizes and ages of files and directories within file systems accessible to that host;

and wherein when the agent process causes the computerized device to perform the operation of processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities, the agent process causes the computerized device to perform the operations of:

for each host defined by the host collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of files and directories within file systems accessible to that host.

29. (Original) The computerized device of claim 16 wherein the data collection policy received defines a file system collection level and wherein when the agent process causes the computerized device to perform the operation of collecting storage information concerning the set of storage entities according to the data collection policy, the agent process causes the computerized device to perform the operations of:

for each file system defined by the file system collection level, collecting storage information related to the sizes and ages of files and directories within that file system;

and wherein when the agent process causes the computerized device to perform the operation of the collected storage information to produce at least one summary

record of the storage information for the set of storage entities, the agent process causes the computerized device to perform the operations of:

for each file system defined by the file system collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of files and directories within that file system.

30. (Original) The computerized device of claim 16 wherein the data collection policy received defines a file set collection level indicating a specific set of files for which storage information is to be collection and wherein when the agent process causes the computerized device to perform the operation of collecting storage information concerning the set of storage entities according to the data collection policy, the agent process causes the computerized device to perform the operations of:

for each file defined by the file set collection level, collecting storage information related to the size and age of that file;

and wherein when the agent process causes the computerized device to perform the operation of processing the collected storage information to produce at least one summary record of the storage information for the set of storage entities, the agent process causes the computerized device to perform the operations of:

for all files defined by the file set collection level, producing a size summary record and an age summary record by applying averaging functions to the storage information related to the sizes and ages of the files identified by the file set collection level.

31.   (Canceled)

32.   (Canceled)

33.   (Canceled)

34.   (Canceled)

35.   (Canceled)

36.   (Canceled)

37.   (Canceled)

Reasons for allowance

6.   The following is an examiner's statement of reasons for allowance:

- Prior art of record does not appear to teach or suggest or render obvious
  the claimed limitations in combination with the specific added limitations
  as recited in independent claims 1, 7, 16 and 22. The prior art of record
  fails to teach or suggest in combination of claimed elements including "in
  response to the occurrence of the collection period, parsing the set of file
  systems to query each of the at least one files within directories in the set
  of file systems identified based on the collection level to obtain file
  metadata associated with each file and collecting the storage information
  related to ages and sizes of files and directories for each storage entity
  associated with at least one of the host collection level, the file system
  collection level and a file set collection level" as recited in independent
  claims 1 and 16, and further, "wherein receiving a selection of a file set
  collection level comprises receiving file filter criteria including at least one
  of: at least a portion of a name of a file, an owner of a file, an age of a file,

or a size of a file, and the file filter criteria identifying file characteristics of

files to be included within the set of storage entities from which storage

information is to be collected." as recited in independent claims 7 and 22.

- Zahavi et al. (US Patent 6,886,020) teaches a data management and

  archive method and apparatus, such as for implementation in an

  automated system to monitor and manage status, performance and

  configuration data for a plurality of networked storage components.

  Analysis and cross-correlation of data related to the plurality of storage

  components can be done individually, collectively and/or comparatively.

  Therrien et al. (USPA Pub. 2004/0093361A1) teaches a computer primary

  data storage system that integrates the functionality of file backup and

  remote replication to provide an integrated storage system. One

  embodiment of the invention provides a data protection system for

  protecting files on a fileserver. The system includes a primary repository

  in communication with the fileserver via a network.

7.   Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sathyanarayan Pannala/
Primary Examiner, Art Unit 2164

srp
January 15, 2009